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## PROVISIONS FOR THE INDIVIDUAL DIFFERENCES OF HIGH SCHOOL PUPILS

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## **Provisions for the Individual Differences of High School Pupils**

**Provisions for individual differences do not necessarily involve the use of standardized tests.** A great deal has been written and said within the last few years concerning the matter of providing for the individual differences of pupils. This has been especially true since the introduction of standardized tests of general intelligence and achievement, altho their use is not necessarily involved. Many persons have, however, assumed that the one involves the other and as a result there has arisen a considerable amount of confusion in the discussion of both provisions for individual differences and the use of standardized tests. Persons who have been strong advocates of the former have taken for granted that the results of tests should be the basis of classifying pupils, while others who are opposed to segregating pupils on the basis of ability have denounced the use of standardized tests, apparently not realizing that they can be used for other purposes. The same thing has been true from the other side, that is, persons who believed or disbelieved in the use of tests have allowed their attitude on that subject to influence their belief about providing for individual differences. Therefore the writer is anxious to emphasize the fact that neither one has any necessary dependence upon or connection with the other. Provisions were being made for individual differences long before standardized tests were introduced. Likewise standardized tests are used for many purposes that have no connection with providing for individual differences.

**Plans vs. their execution.** It should also be remembered that plans for taking care of individual differences may be good but that their execution may be faulty. For example, the plan of arranging homogeneous groups of pupils according to their ability may be a desirable one but impossible to carry out because we are not yet able to ascertain the true ability of pupils. Likewise, it may be desirable to provide for individual differences by maximum and minimum courses but we may not be able to determine what the content of these courses should be. A confusion of these two factors similar to that regarding provisions for individual differences and standardized tests has arisen. Plans that are probably very good are condemned merely because the schools using them have not been able to carry them out efficiently. In considering the plans described in this circular it should

be remembered that practically none of them have been tried out under ideal conditions and probably most of them can not be for a considerable time to come, if ever. If favorable results are obtained from their use at present it is possible that still more favorable results can be obtained in the future, while if neutral or positively unfavorable results are obtained it is possible that these are due to weaknesses in execution and not in the plan itself.

**Limitations of high schools in providing for individual differences.** In the matter of making provisions for individual differences high schools as contrasted with elementary schools suffer certain disadvantages. Probably the chief difficulty is that the high school enrollment is usually much smaller than that in the elementary school. As many of the plans suggested and used require the grouping of pupils according to differences of some sort, it is often an advantage to have a rather large number of pupils to deal with. The fact that high schools offer a more differentiated curriculum results in a still further division of the high school pupils, especially those in the upper years, so that the enrollment in any one class is often too small to justify the organization of more than one section. Another difficulty is caused by the difference between the subject-matter taught in high schools and that in elementary schools. Because of this difference it is usually considered unwise, if not practically impossible, for even a very bright high-school pupil to skip the work of a whole semester or year as elementary pupils frequently do. Despite the difficulties, however, a number of high schools are making more or less adequate provision for individual differences. In doing so they are probably aided by one or two distinctive features of the high school. One of these is that promotion in the high school is almost entirely by subjects. By controlling the number of subjects carried by a pupil the work can, to a certain extent, be adapted to his ability. Probably the greatest advantage of the high school over the elementary school lies in the differentiated curriculum which was mentioned above as being also a disadvantage. Through its very differentiation the varying interests of high-school pupils can be taken care of in a way that is impossible in most, if not all, elementary schools.

**Plans actually in use in high schools.** Among the plans actually in use in high schools are those that will be described. A few have been used only in an experimental way, but several of them are settled policies in many schools.

**1. Variation in amount of work carried.** Probably the most commonly used plan is the one which allows superior pupils to carry more than the regular amount of work and requires inferior pupils to carry less. There are very few high schools in which at least a few pupils are not carrying extra work. This phase is probably more common than that of requiring inferior pupils to drop a part of their work. In many ways this plan yields good results. Some schools allow a few of the brightest pupils to carry enough extra work that they can be graduated in three years and most schools organized upon the semester plan make it possible for bright pupils to be graduated in three and one-half years. On the other hand, if pupils wish to do so they may remain in school the full four years and earn extra credits, thus broadening their high school course rather than hastening its completion. The basis of determining which pupils shall carry extra work is usually to allow all those reaching a certain standard in their school marks to do so if they wish. It is probably wise to require that such a standard be reached, altho it would probably be well to supplement this requirement with results from intelligence tests, the opinions of the teachers, etc.

The other part of the plan, that having to do with inferior pupils, is more doubtful in its advisability. It has not yet been definitely proven that by requiring pupils to carry less than the normal amount of work the quality of their work is improved. Data from some schools appear to show that this result will follow, whereas those from others do not. The writer is inclined to believe, however, that if the plan is properly administered the variations found are rather among types of individuals than schools. Dull pupils who are doing their best work and still are unable to make passing marks in four subjects are likely to do better work in the remaining three if one of the four is dropped, whereas pupils whose poor work is due rather to their idleness or dislike of the subject than to their mental inferiority are not likely to improve their work in other subjects if one is dropped. Thus the judgment of the teacher and principal must be exercised to determine which pupils shall be required to do less than the regular amount of work rather than having a fixed rule that any pupil making marks below a certain standard must do so. On the whole, the plan of making some adaptation of the amount of work carried to the ability of the pupil is a good one and should have a permanent place in all high schools.

**2. The organization of sections according to ability.** The plan of grouping pupils according to their ability is the one concerning which there has been the most recent discussion. Ordinarily this grouping is made by dividing all the pupils taking the same work into a number of sections, one of which contains the best pupils, another the next best and so on. A number of criteria of classification have been used. Among these are the results from intelligence and achievement tests, school marks (either in the grades or in high school), teachers' estimates of ability or capacity, and various combinations of these. In high schools that are large enough to carry out such a plan in part, if not all, of their classes it is probably desirable to do so. It is often practically impossible to prepare a schedule that will permit the most complete grouping of pupils according to ability but a fair degree of such grouping can usually be allowed. Such a plan is greatly facilitated if the schedule can be so arranged that all sections of the same class meet at the same time.

**3. Grouping within the recitation section according to ability.** In the case of classes that are too small to sub-divide into separate sections divisions may be made within the single class or recitation section. How this is done can probably best be illustrated by an actual example drawn from the writer's own experience. The freshman algebra class of a small high school consisted of thirty students and not more than one period per day could be allowed for its recitations. Therefore a plan of dividing the class into three groups was worked out. Eight or nine pupils were placed in the superior group, as many in the inferior, and the twelve or fourteen remaining in the average group. The pupils of all three groups came to class at the regular time and remained there during the whole period just as if the class had not been divided. Upon arriving, however, the pupils of the average and inferior groups at once began to study, while the teacher started the recitation with the superior group. Only a short time was consumed in straightening out the difficulties of this group and perhaps assigning problems to be put on the board, after which the teacher passed on to the average and later to the inferior group. By the time he had completed the circuit the superior group was ready for discussion of the work on the board. When this was completed the average group was ready and then the inferior. In the particular school in which this was used the recitation period was sixty minutes in length but the teacher found that it practically never required more than forty-five and usually no more than forty to

complete the work with the three sections. At the same time and in the same school another teacher divided a sophomore geometry class into two sections and worked according to the same general plan. Such a division of a class is undesirable, if not impossible, in some high-school subjects. Those subjects in which a large part of the value obtained from the class work comes from the discussion and interchange of opinion could not well be handled in this way. The plan is desirable in most, if not all, high-school mathematics, in beginning foreign language, and perhaps in some other subjects.

a. **The basis of grouping pupils.** As was said above there are a number of bases or criteria of classification that may be used in dividing pupils into recitation sections or into groups within a single class. It has not yet been determined just what the best basis is. For example, in a Long Beach, California, (5)<sup>1</sup> high-school freshmen have been grouped into four sections in English according to their scores upon the Otis Scale. In a St. Louis (7) high school results of the same scale and of achievement tests, and the pupils' interests and aptitudes are the bases of classification. In the Arlington, Massachusetts, (6) high-school pupils are classified into three groups on the basis of their marks in the same subject if they have carried it before; if not, those in similar subjects are used. In Arlington pupils are also reclassified every two months. Many other examples could be cited. A recent study (3) of provisions in the junior and senior high schools of fifty cities, all of which are interested in this work, showed that in 53 percent of them the basis of classification was a combination of intelligence test results and teachers' estimates, in 40 percent a combination of intelligence test results and school marks, and in the remaining 7 percent school marks alone were used. It is probable that a combination of several, if not all, of the items mentioned above, perhaps with some additions, is best. The writer would recommend that in the original grouping of pupils the average results from two group intelligence tests or one individual test should be the chief factor, but should be supplemented by whatever other information is available. Except in the case of pupils of very poor health he would recommend that all pupils who appear to be of superior intelligence be given the chance to work in a superior section. Undoubtedly some of these will have to be shifted to lower sections because of errors in the test results, their indolence or some other reason. Likewise there will be certain pupils who should be shifted from

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<sup>1</sup>The numbers in parentheses refer to the references at the close.

other sections into the superior section. These are pupils who apparently did not do themselves justice upon the tests of intelligence or who, altho only of average intelligence, have such a great liking for their work, or such unusual perseverance and studiousness, that they are able to do work of a superior quality. It is probable that there will be fewer pupils in this group than in the number of those who do not do the work that might be expected according to the results of intelligence tests.

b. **The number of sections or groups.** Another question that arises in connection with the general plan of grouping is concerning the optimum number of groups. If the groups are each separate recitation sections probably the best plan is as follows: After the standard size of section has been determined the first section is composed of the proper number of those ranking highest, the next section of the proper number coming next, and so on until the last contains those ranking lowest. Some have argued that the number in the different sections should not be the same but it has at least not been proved that it is wise to make any difference in this matter. In grouping within a class three groups is probably the desirable number to have. Pupils tend to be divided into three groups, superior, average, and inferior. Two groups are frequently used but in this case either the superior or inferior pupils are neglected or the average pupils are grouped partly with the superior and partly with the inferior, altho they belong with neither. More than three groups are rather difficult to handle. In forming three groups the average group should usually contain almost one-half of the pupils and each of the others approximately one-fourth.

c. **The work done by groups that differ on the basis of ability.** There are at least two distinct theories as to what should be done with pupils of differing abilities after they have been placed in homogeneous groups. One is that all the groups or sections should cover the same work at different rates and the other that the better sections should do more intensive or extensive work than the poorer ones. The former plan is probably easier from the standpoint of instruction, the latter from that of general school administration. It is much easier for the teacher to present the same material three times tho at different rates than to have to organize a minimum essentials course, to supplement this for the average group and to supplement it still further for the superior group. If the plan of progressing at different rates is followed it will result in some sections completing

the work before the end of the semester or year, and the question will arise as to what use is to be made of the remaining time. There are several possible answers. More work in the same subject may be covered and perhaps extra credit given for it. This is probably the best solution, altho administrative difficulties are often involved. In some schools the pupils completing the work are released from further attendance at class in that subject so that they can give more time to other subjects. However, these pupils are usually the very ones who do not need extra time to spend upon their other subjects. Probably the chief objection to varying the amount of work done by the different sections is that the pupils of the superior sections do not like to do extra work without receiving extra credit. Such credit may be given or the difficulty may be overcome by a skilful handling of the situation. It has been shown that it is possible to motivate the work so that the brighter pupils will not object to doing a greater amount than the others.

Whether the plan for providing different rates of progress or minimum and maximum courses is best is a question that the writer can not answer. One's general philosophy of education largely determines his opinion. Some persons believe that it is desirable to gain as much time as possible, others that the time of preparation should not be shortened but that better preparation should be given during this time. As is often the case probably the best procedure is a compromise between the two extremes. That is to say, superior pupils should probably do more work than inferior pupils but not so much more that they are prevented from gaining some time. For example, a superior section that might do the regular ten months' work in eight had probably better do it in nine and do some extra work along with it. From the standpoint of administration, however, it is often necessary that if a group does any extra work at all it do enough to complete an entire extra unit. Thus the choice might be between doing only two semesters of work at the regular rate but doing it much more intensively and extensively and doing three semesters of work in two. The writer does not wish to suggest which one of these alternatives is the better but merely to say that probably either one is better than neither.

**4. Credit for quality.** A plan for taking care of individual differences that has not come into wide use and probably will not in the near future, is that of credit for quality or, as it is sometimes called, of fractional credits. In this plan there is a graduated scale

of credits according to school marks, 1.0 credit being given for an average mark of, say 85 percent, perhaps 1.1 for a mark of 90, 1.2 for one of 95, .9 for one of 80, and .8 for one of 75. The chief argument for this plan is that instead of requiring the better pupils to scatter their efforts over more than the ordinary number of subjects in order to be graduated in a shorter time, this can be accomplished by concentrating upon the regular number of subjects. In other words, the advocates of this plan believe in intensive rather than extensive work, at least as regards the number of subjects carried. The chief hindrance to the general use of this plan is that only a few higher institutions will allow the extra credit earned in this way to count toward their entrance requirements. Some years ago the University of Chicago High School (9) introduced this plan and the University itself agreed to accept credits earned in this way. The plan was also introduced in a division of the University of Missouri. So far, however, very few high schools have adopted the plan in its entirety. It is not uncommon for schools to have a double system of bookkeeping, one of which counts credits in the usual way for purposes of college entrance and probably graduation, the other of which counts credits or points according to the quality of work and is used as the basis of awarding various honors.

**5. Individual instruction and progress.** A plan that has often been advocated and has received a fair amount of trial in elementary schools but has been only rarely used in high schools, is that of absolutely individual instruction and progress. The Pueblo plan (10) is probably the best known of this type. As Superintendent Search said, the Pueblo plan provided for individual work, individual progress, individual promotion, and individual graduation in both elementary and high school. A number of advantages are claimed by Superintendent Search and others. Among them are that pupils enjoy better health, develop more self-reliance, do more work, do it better and more enthusiastically, suffer less discouragement, and have more opportunity for outside work. Winnetka, Illinois, (11) is also well known as a city that has adopted this plan. Here, however, the high school is not concerned, as there is none in the city. It seems unquestionable that the successful operation of this plan requires unusually able teachers and probably also special training on their part. Many, if not most, educators object to it on the ground that many of the most important things to be gained from school and especially from high school result from class discussion and other

group and social activity. This plan reduces such activity to a minimum, really doing away with it in the regular subjects. It is also somewhat difficult to administer and necessitates a rather elaborate system of bookkeeping to keep track of the progress of each pupil. Theoretically, it should result in there being no failures as each pupil is supposed to stay with each piece of work until he has satisfactorily mastered it. On the whole, the plan may be dismissed with the comment that while it undoubtedly has many theoretical advantages we can not expect many schools to adopt it soon.

**6. Length of unit of work.** A feature of school organization that tends to make provision for individual differences easier is the breaking up of the work of the year into shorter units. It is now fairly general to find the semester plan of organization rather than the annual in large and medium-sized cities; also it is not uncommon to find the year divided into three terms instead of two semesters. A few schools have gone even further than this and divided the year into four quarters. As was mentioned above, in the Arlington high school pupils are reclassified every two months. The chief advantage of the shorter unit from the standpoint of caring for individual differences is that if a pupil fails he loses less time. There are, however, certain other advantages. Pupils who are able to carry some extra work but not a great deal can probably do so better by carrying an extra subject for a comparatively short time, then only the regular amount for a while, and then an extra subject again. Likewise pupils who are carrying slightly too much can reduce the amount for a short time and perhaps later take the normal amount again after having suffered the loss of only a small amount. The plan has, however, some disadvantages. Much of our high-school work is probably injured by being broken up into small units. There is a belief among many teachers that even the semester is too short as a unit in which to organize the work in many subjects. It is of course possible to organize the work in year units and yet reclassify pupils oftener, but doing the latter tends to break up the year-unit organization. The advantages resulting from a shorter division than the semester are probably not enough greater than the disadvantages to warrant its introduction into high school.

**7. Basing marks on quantity as well as quality.** The plan of offering maximum and minimum courses has been mentioned in a previous paragraph. Some schools make use of what is really a variation of this plan which is sometimes spoken of as credit for quantity

as well as quality. According to this plan the same work is pursued by all the members of the class but there are certain extra assignments which must be done by pupils to earn marks above the average. If a mark of 85, for example, is considered average, a pupil must do a certain amount of supplementary work to make a mark of 90, a still greater amount to receive a mark of 95, etc. The high mark is not given for merely doing the extra work but its quality must also be satisfactory. In the formal use of this plan certain definite work is assigned and the pupils who wish to try for high marks do so with full knowledge of the purpose. The amount of this work is more or less governed by the principle that all pupils should spend approximately the same amount of time in completing their assignments. The bright pupils often object to this plan as they feel that they should receive higher marks for better quality without being required to do a greater quantity. It is usually possible, however, to make most pupils see that it is fair to require both better quality and greater quantity for a higher mark.

Many teachers make use of the plan just described in a more informal way. That is, they do not definitely announce that pupils must do a greater quantity to receive higher marks but in giving individual assignments of various sorts they so allot them that the brighter pupils receive the more difficult and longer tasks and are probably also held to a higher standard of performance. In this case it is not so evident that the brighter pupils are really doing more in quantity than the poorer pupils and often they are not fully aware that they are. Sometimes the term "varied" or "individual" assignments is given to this informal plan.

**8. Special periods for taking care of individual differences.** A plan that has been used in the elementary and junior-high schools and that might also be used in the regular high school is that in use at Drumright, Oklahoma (8). According to this plan one or two periods of each day are set aside for special work. The general organization is lost sight of and the pupils grouped with the different teachers in such a way as to meet their interest and needs in the best possible manner. Out of the total group of pupils each teacher selects those to whom she thinks it would be profitable to give special work of some kind or other. A certain teacher is given first choice and selects a group of about average class size, another teacher then selects her group, a third hers, and so on. The groups remain as thus formed for six weeks after which they are disbanded and

new groups formed, another teacher getting first choice this time. In general the teachers who come near the head of the list select groups of bright pupils and give them extra work of some sort, whereas those who come near the end of the list have dull pupils and give them special drill or remedial instruction. The type of work to be given is largely, if not entirely, decided by each teacher. The plan just described is one that appears to have worthwhile possibilities. It would be distinctly difficult, however, to organize a school having the usual type of program so as to provide for this special period. In a large high school it would require so long for the first choice to rotate among all the teachers that certain teachers would be near the head of the list for several years and others near the end for the same time. This could perhaps be obviated by considering one class as a group to be divided by certain teachers or perhaps even some smaller unit than this might be taken.

**9. Summer and other special work.** Some high schools provide opportunities for pupils to carry work in the summer. Tho this can probably not be called primarily provision for individual differences, yet it may be largely so. Often the pupils who attend these sessions are either the inferior ones who have failed and wish to make up their work or the superior ones who wish to lessen the time required for graduation. Closely analogous to this plan is that of allowing pupils to take special work outside of school but during the time of the regular school session. This may be taken under a tutor or in an evening school. Here again the inferior and superior pupils are probably helped more than the average ones. The pupils who do work of this sort are often allowed to take an examination over a subject wherein they have failed or in which they are trying to get extra credit and if they pass the examination are given the same credit as if they had carried and passed the subject in the regular high-school course. Most inferior pupils probably can not do this work to advantage as by taking time for it they merely lower their standing in their other high-school subjects, but superior pupils are often able to do it without running this danger. In most cases, however, it is probably better to allow superior pupils to carry their extra subjects in the regular high-school classes.

**10. Supervised study.** Altho not primarily intended as a means of caring for individual differences, supervised study has shown that it offers opportunities for so doing. Most, if not all of these, opportunities are in connection with some of the plans mentioned above.

For example, if there are several sections within the same class the longer period that usually accompanies supervised study is a decided advantage, tho not a necessity. Likewise in handling individual or varied assignments a supervised study system makes the work of the teacher much easier. This is especially true in the case of formal supplementary assignments for superior pupils as many of these assignments can not well be taken up as part of the regular recitation.

**Individual differences that are not differences in ability.** The foregoing discussion of provisions for individual differences has centered around individual differences in mental ability, or at least in the application of mental ability to school work. It is important to remember, however, that differences of this sort are not the only differences that exist among high school pupils. Probably the most important of the other differences are those in interests. These manifest themselves especially in the vocational choices and the recreations of high-school pupils. Some schools are recognizing the differences in vocational interests and allowing them to play a part in the grouping of pupils. There is no reason why such differences should not play an even greater part than they do, at least in some subjects. In one high school with which the author is familiar boys who expect to go into some form of engineering work form one section of freshman algebra, girls who never expect to make any further use of the subject form another. Likewise in freshman English there is a special section of pupils interested in journalism and two or three sections of those whose chief interest is in commercial work. Such a differentiation could easily and profitably be extended to a number of high-school subjects besides those just mentioned. Differences in recreational and other interests, in attitudes, physical stamina, etc., should receive large attention by the teacher in making assignments of individual work, in calling upon the pupils for discussion of various topics, and in the other work of the recitation. The extra-curricular activities of the school likewise offer many opportunities for giving a great deal of attention to individual differences.

**Bibliography.** The first four of the references given below present the results of rather extensive studies of the provisions for individual differences actually in use. The others describe certain plans illustrative of the discussion above.

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